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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/561,389

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Tsunchisa Sanagi

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EXAMINER

VERDIER, CHRISTOPHER M

ART UNIT

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3745

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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/561,389	<b>Applicant(s)</b> SANAGI ET AL.	
	<b>Examiner</b> Christopher Verdier	<b>Art Unit</b> 3745	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☐ Responsive to communication(s) filed on 23 June 2010.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-4,6,7,10,11,13,14,17,20 and 23-31 is/are pending in the application.
- 4a) Of the above claim(s) 13 and 29-31 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-4,6,7,10,11,14,17,20 and 23-28 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 December 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                    | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)         | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                          |

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Applicant's Amendment dated June 23, 2010 has been carefully considered but is non-persuasive. The specification has been amended to correct the informality therein. The claims have been amended to overcome the rejections under 35 USC 112, second paragraph set forth in the previous Office Action. Correction of these matters is noted with appreciation.

Applicant has argued concerning the primary reference to Japanese Publication 64-41,697 that the so-called edge portion 18 and end surface (near 21) extend vertically along the leading/trailing rotational edge, but not between the leading and trailing rotational edges of the blade such that an interior surface of the edge portion faces the main/side plate through the hollow space of the blade along a majority of the hollow space between the leading and trailing rotational edges of the blade. This argument is not persuasive, as best understood. Applicant's edge portion (element 55a, for example) is not configured such that an interior surface of the edge portion faces the main/side plate 43/45 through the hollow space of the blade along a majority of the hollow space between the leading 55 and trailing 54 rotational edges of the blade. Applicant refers to the interior surface of the edge portion facing the main/side plate through the hollow space of the blade along a majority of the hollow space between the leading and trailing rotational edges of the blade, but edge portion 55a, for example, as well as other edge portions, do not face the main/side plate through the hollow space of the blade along a majority of the hollow space between the leading and trailing rotational edges of the blade, because the hollow space S between the leading and trailing rotational edges of the blade is not filled by the edge portion along a majority of the hollow space between the leading and trailing rotational edges of the blade.

With regard to Applicant's argument that the current record lacks any apparent reason, suggestion or expectation of success for combining the patents, and then further modifying the hypothetical device created by the hypothetical combination of references to create Applicants' unique arrangements of independent claims 1-4, citing *KSR Int'l Co. v. Teleflex Inc.*, this argument is not persuasive. The reason for the combination of Japanese Publication 64-41,697 and either (Glucksman 3,536,416 or Kim 6,848,887) is clearly set forth in the previous Office Action as being for the purpose of reducing the weight of the impeller. One of ordinary skill in the art is presumed to know something about the disclosures of references, and would clearly know that both Glucksman 3,536,416 or Kim 6,848,887 teach impellers made of resin material, for the purpose of reducing weight.

With regard to Applicant's arguments that the characterization in Japanese Publication 64-41,697 of the blade shape retaining mechanism as being the element near 21 appears to be improper, because the blade shape retaining mechanism of claims 1-4 is a part preventing the second surface portion from being deformed toward outer peripheral side by centrifugal force, while the engagement dish 21 of Japanese Publication 64-41,697 is a part where the sub blade body 17 is set in the main blade body 16, and sub blade body 17 moves and is deformed toward the hollow space side by centrifugal force, noting Applicant's annotated figure 1 of Japanese Publication 64-41,697 with deformation of sub blade body 17 due to centrifugal force illustrated, and that engagement ditch 21 does not have the function to suppress the deformation of the sub blade body by centrifugal force, these arguments are not persuasive. The second surface portion

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17a of the blade forms part of the airfoil shape of the blade, and the blade is not configured to be unstable during operation of the centrifugal fan. There is attachment near 21 (which forms a shelf) of the second surface portion 17a of the blade to the first surface portion 16. This attachment via the element near 21 suppresses the deformation of the sub blade body by centrifugal force. Further, a slow rotation speed of the fan clearly would not result in much centrifugal force, and the second surface portions would be prevented from being deformed toward the outer peripheral sides of the second surface portions by centrifugal force.

With regard to Applicant's argument that Japanese Publication 64-41,697 teaches that the main blade body should be metal and not plastic, and thus teaches away from constructing the main blade body 16 of resin material as suggested in the Office Action, the examiner disagrees. As set forth in the Office Action, merely forming a blade such that it is constructed of resin, as opposed to the metal disclosed in Japanese Publication 64-41,697, would be *prima facie* obvious in light of the teachings of either Glucksman 3,536,416 or Kim 6,848,887.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1-4, 6-7, 10-11, 14, 17, 20, and 23-28 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably

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convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Independent claims 1, 2, 3, and 4, in the last paragraph, have been amended to recite that an interior surface of the edge portion faces the main plate through the hollow space of the blade along a majority of the hollow space between the leading and trailing rotational edges of the blade. However, edge portion 55a, for example, as well as other edge portions, do not face the main/side plate through the hollow space of the blade along a majority of the hollow space between the leading and trailing rotational edges of the blade, because the hollow space S between the leading and trailing rotational edges of the blade is not filled by the edge portion along a majority of the hollow space between the leading and trailing rotational edges of the blade. Thus, the underlined limitations add new matter.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-4, 6-7, 10-11, 14, 17, 20, and 23-28 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Independent claims 1, 2, 3, and 4, in the last paragraph, have been amended to recite that an interior surface of the edge portion faces the main plate through the hollow space of the blade along a majority of the hollow space between the leading and trailing rotational edges of the blade. However, edge portion 55a, for example, as well as other edge portions, do not face the main/side plate through the hollow space of the blade along a majority of the hollow space between the leading and trailing rotational edges of the blade, because the hollow space S between the leading and trailing rotational edges of the

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blade is not filled by the edge portion along a majority of the hollow space between the leading and trailing rotational edges of the blade. Thus, the underlined limitations are inaccurate.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-4, 7, 11, 14, and 23-28 (as far as they are definite and understood) are rejected under 35 U.S.C. 103(a) as being unpatentable over Japanese Publication 64-41,697 in view of either (Glucksman 3,536,416 or Kim 6,848,887) and Sato 6,113,353. Japanese Publication 64-41,697 discloses an impeller of a centrifugal fan substantially as claimed, comprising: a main plate 5 configured to rotate around an unnumbered rotating shaft, a plurality of hollow blades 15

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annularly disposed around the rotating shaft, each of the hollow blades including a first surface portion 16 fixed to the main plate, a second surface portion 17 attached to the first surface portion to form a hollow space therebetween, a side plate 13 fixed to the first surface portions, the hollow blades being disposed between the main plate and the side plate, the main plate, the hollow blades and the side plate being configured to take in a gas from a rotating shaft direction and blow out the gas in a direction intersecting the rotating shaft, each of the second surface portions forming at least part of a negative-pressure surface, and each of the first surface portions forming at least part of a positive pressure surface, the hollow blades including a blade shape retaining mechanism to prevent the second surface portions from being deformed toward outer peripheral sides of the second surface portions by a centrifugal force, and each of the first surface portions having an edge portion (near 18) extending from a side plate end thereof toward a respective one of the second surface portions, and each edge portion having an end surface (near 21) that abuts the respective one of the second surface portions at a side plate end thereof to form part of the blade shape retaining mechanism. Each blade has a leading rotational edge 18 and a trailing rotational edge 19a with the edge portion of the blade extending between the leading and trailing rotational edges of the blade. The second surface portion is configured to remain attached to the first surface portion while a centrifugal force resulting from the rotation of the main plate acts thereon. A side plate guide mechanism 23 positions the hollow blades in the side plate. A main plate guide mechanism 23 positions the hollow blades in the main plate. A drive mechanism 6 is configured to rotate the main plate. The second surface portion is attached to the first surface portion by inserting a portion of the second surface portion into the first surface portion.



However, Japanese Publication 64-41,697 does not disclose the main plate being constructed of resin material, does not disclose the first surface portion being constructed of resin material, does not disclose the second surface portion being constructed of resin material, does not disclose the side plate being constructed of resin material (claims 1-4), and does not disclose that the edge portion of the blade extends between the leading and trailing rotational edges of the blade such that an interior surface of the edge portion faces the main plate through the hollow space of the blade along a majority of the hollow space between the leading and trailing rotational edges of the blade (claims 1-4).

Glucksman shows an impeller having a main plate 3 constructed of resin material, blades 1 each having a blade first surface portion constructed of resin material and a second surface portion constructed of resin material, and a side plate 4 constructed of resin material, for the purpose of reducing the weight of the impeller. Kim (figures 5-10) shows an impeller 100 having a main plate 112 constructed of resin material, blades 120 each having a blade first surface portion constructed of resin material and a second surface portion constructed of resin material, and a side plate 130/230 constructed of resin material, for the purpose of reducing the weight of the impeller.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to form the impeller of Japanese Publication 64-41,697 such that the main plate is constructed of resin material, the first surface portion is constructed of resin

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material, the second surface portion is constructed of resin material, and the side plate is constructed of resin material, as taught by either Glucksman or Kim, for the purpose of reducing the weight of the impeller.

Sato (figures 2-10) shows a fan having blades 2 each with an edge portion (inside of 2a) of the blade that extends between a leading 2a and trailing 2b rotational edge of the blade such that an interior surface of the edge portion faces a main plate 1 through a hollow space 3 of the blade along a majority of the hollow space (in the radial direction) between the leading and trailing rotational edges of the blade, for the purpose of providing secure and structurally sound blades.

It would have been further obvious at the time the invention was made to a person having ordinary skill in the art to form the modified impeller of Japanese Publication 64-41,697 such that the edge portion of the blade extends between the leading and trailing rotational edges of the blade such that an interior surface of the edge portion faces the main plate through the hollow space of the blade along a majority of the hollow space between the leading and trailing rotational edges of the blade, as taught by Sato, for the purpose of providing secure and structurally sound blades.

The recitations of the side plate integrally molded with or fixed to the first surface portions by laser welding, the side plate being molded separately from the first surface portions, each edge portion being laser welded to the side plate, the first surface portion fixed to the main

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plate by laser welding, and the first portion being molded separately from the main plate, are all product-by-process claims. Even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product-by-process claim does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process. *In re Thorpe*, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985).

Claims 6, 10, 17, and 20 (as far as they are definite and understood) are rejected under 35 U.S.C. 103(a) as being unpatentable over Japanese Publication 64-41,697 and either (Glucksman 3,536,416 or Kim 6,848,887) and Sato 6,113,353 as applied to claims 1, 2, 3, and 4, respectively above. The modified impeller of Japanese Publication 64-41,697 shows all of the claimed subject matter except for the side plate including a material with a higher light transmittance than a material of the first surface portions (claims 6 and 17), and except for the main plate including a material with a higher light transmittance than a material of the first surface portions (claims 10 and 20).

It is common practice in the art to change the light transmittance (color) of separate parts in order to better differentiate between parts during assembly. Therefore, it would have been further obvious at the time the invention was made to a person ordinary skill in the art to form the modified impeller of Japanese Publication 64-41,697 such that the side plate includes a material with a higher light transmittance than a material of the first surface portions, and such

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that the main plate including a material with a higher light transmittance than a material of the first surface portions, as an engineering expedient.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher Verdier whose telephone number is (571) 272-4824. The examiner can normally be reached on Monday-Friday from 10:00-6:30.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward K. Look can be reached on (571) 272-4820. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Christopher Verdier/  
Primary Examiner, Art Unit 3745

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